

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



533 960

(43) International Publication Date
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number
WO 2004/043092 A1

(51) International Patent Classification⁷: H04Q 7/22,
H04L 12/56

(21) International Application Number:
PCT/CA2003/000875

(22) International Filing Date: 16 June 2003 (16.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/423,371 4 November 2002 (04.11.2002) US

(71) Applicant (for all designated States except US): RE-
SEARCH IN MOTION LIMITED [CA/CA]; 295 Phillip
Street, Waterloo, Ontario N2L 3W8 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ZHAO, Wen

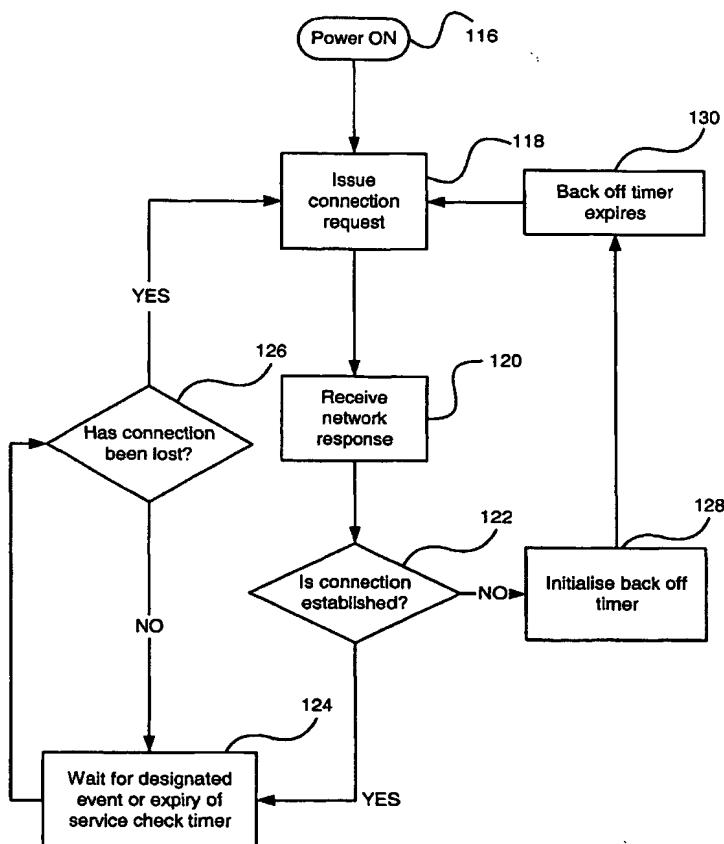
[CA/CA]; 27 Wynridge Place, Kanata, Ontario K2M 2S8
(CA). CHAUDRY, Shahid, R. [CA/CA]; 12 Berchin
Cres., Ottawa, Ontario K2W 1E4 (CA). PLESTID, T., L.,
Trevor [CA/CA]; 180 Bradford Street, Ottawa, Ontario
K2B 5Z4 (CA). XUE, Hao [CN/CA]; Unit 1, #1328
Maitland Ave., Ottawa, Ontario K2C 2C7 (CA). YEUNG,
Grace, T., Y. [CA/CA]; 18 Deerfield Drive, Apt.1208,
Nepean, Ontario K2L 4G1 (CA). YANOSHEWSKI,
Clifford, W. [CA/CA]; 242 Romulus Private, Ottawa,
Ontario K1K 3Y2 (CA).

(74) Agents: PATHIYAL, Krishna, K. et al.; Research In Mo-
tion Limited, 295 Phillip Street, Waterloo, Ontario N2L
3W8 (CA).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,

[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR MAINTAINING A WIRELESS DATA CONNECTION



(57) Abstract: A system and method for establishing and maintaining an "always-on" data connection to a wireless network through the use of a back off timer and a service check timer is disclosed. The back off timer is initialized to a determined value when a connection is not established. When the timer expires, a connection attempt is made. As further connection attempts are made, the back off timer is set to ever-increasing values. When the data connection is established, the service check timer is initialized. The data connection status is determined at the expiry of the service check timer. When, at the expiry of the service check timer, the data connection is determined to be lost, the connection method is employed.

WO 2004/043092 A1



MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

- (84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*
- *of inventorship (Rule 4.17(iv)) for US only*

Published:

- *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 03/00875

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q7/22 H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04Q H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 47142 A (DENSO CORP ;HUNZINGER JASON F (US); CHENG MARK W (US)) 28 June 2001 (2001-06-28) page 3, line 21 -page 5, line 19 page 13, line 1 -page 19, line 2; figure 4	1,7,8
X	US 2002/082033 A1 (LOHTIA ANIT ET AL) 27 June 2002 (2002-06-27) page 2, paragraph 26 -page 3, paragraph 33 page 4, paragraph 45 -page 6, paragraph 57; figures	12,13, 16,21

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

19 December 2003

Date of mailing of the international search report

05/01/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Tsapelis, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 03/00875

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0147142	A	28-06-2001	WO 0147142 A1	28-06-2001
US 2002082033	A1	27-06-2002	NONE	